

C O R P O R A T E P R O F I L E



REDIFFUSION
Simulation

Rediffusion Simulation Incorporated

Commitment. Advanced technology. Training know-how.

Rediffusion Simulation Incorporated has successfully woven these key elements into major training programs for military services, civil airlines, and industrial firms worldwide.

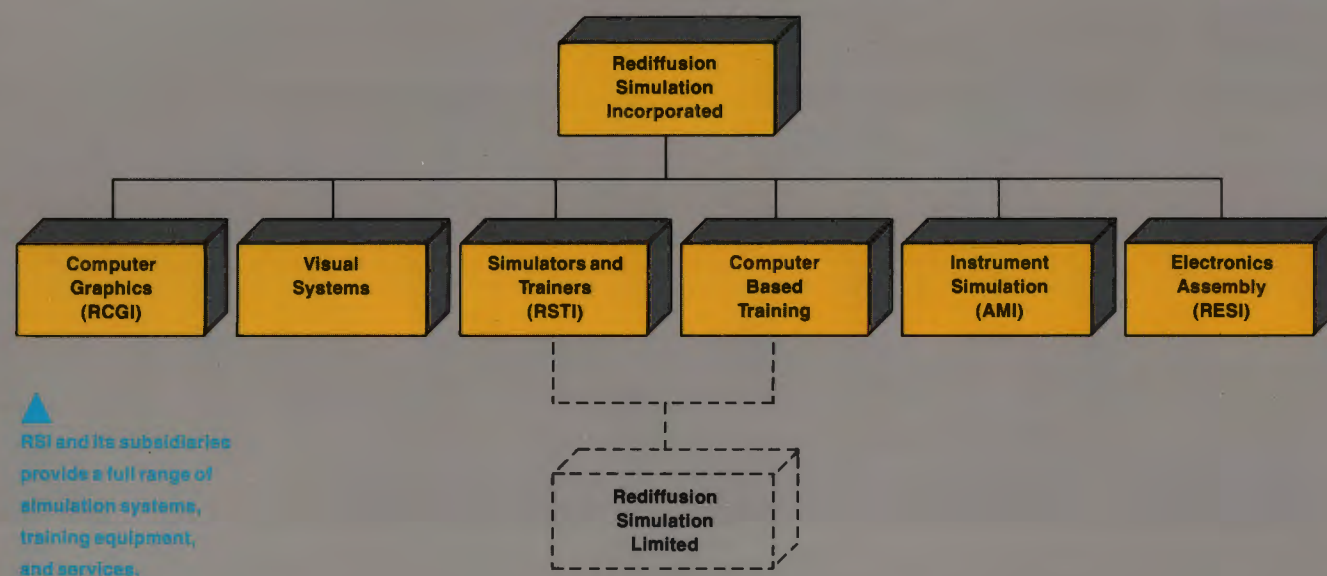
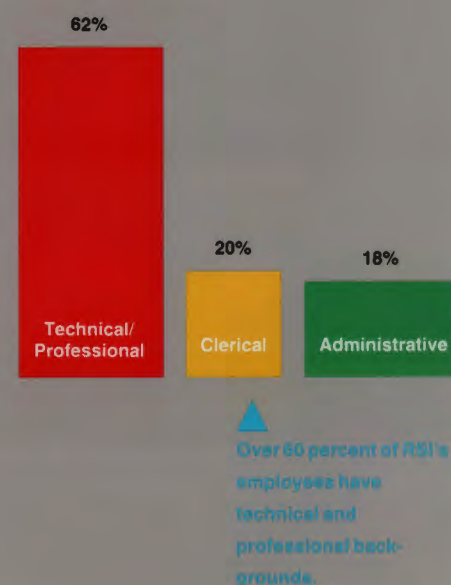
Headquartered in Arlington, Texas, Rediffusion has more than 500 employees. From instructional systems development to simulators, and from integrated logistics support to visual systems design, Rediffusion offers a full range of products and services to support totally integrated training system programs.

Corporate Strength

Rediffusion offers front end analysis, simulation engineering, training equipment design and production capabilities through its five combined operations. These operations include:

- Rediffusion Simulation Incorporated, which provides a full range of visual systems, displays, image generators, and integrated graphics data bases;
- Rediffusion Simulation Tulsa, which manufactures a complete array of training equipment, including motion base simulators, cockpit procedures trainers, and ground maintenance trainers;
- Rediffusion Computer Graphics, which produces low-cost, three-dimensional computer generated imagery for target image generation and task-oriented instruction, like gunnery training;
- Rediffusion Electronic Systems, which offers low-volume, customized electronics manufacturing services; and
- AMI Instruments, which engineers simulated instruments, solid state cockpit displays, and simulated ground test equipment.

Rediffusion has the experience, engineering expertise, manufacturing facilities, support services and management leadership to meet the most demanding training and simulation industry challenges . . . today and tomorrow.



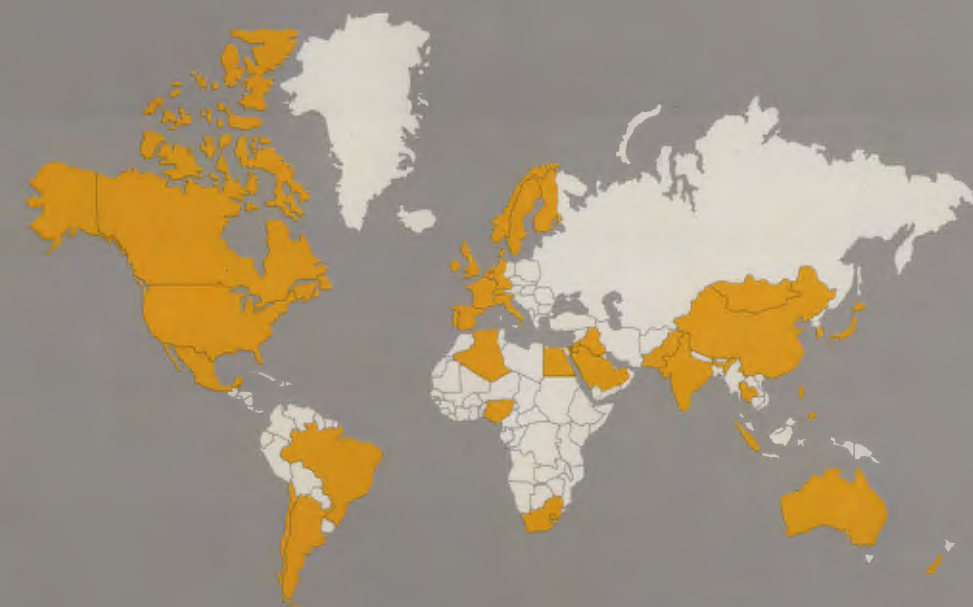
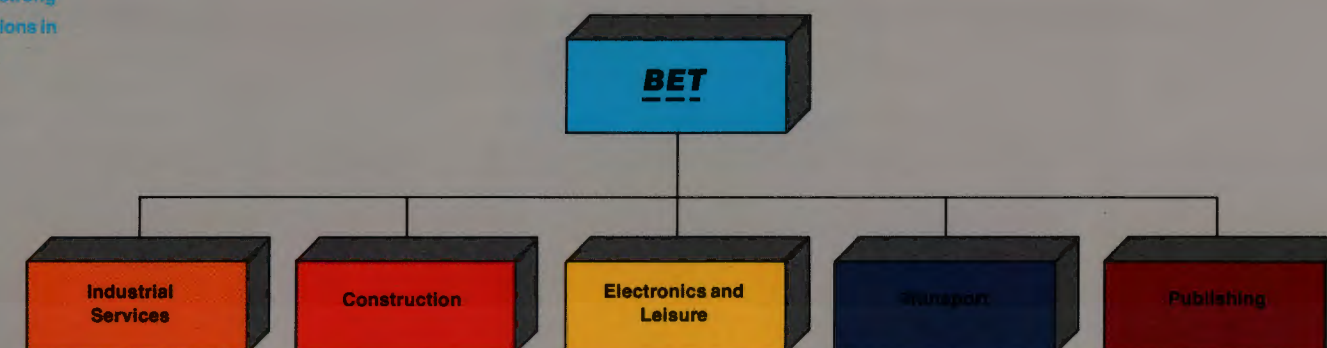
In producing training systems which increase instructional effectiveness while decreasing the total cost of training, RSI benefits from its close corporate relationship with Rediffusion Simulation Limited, Europe's largest simulator products manufacturer.

Headquartered in Crawley, England, RSL employs more than 2,000 people who are totally dedicated to the design and production of simulation and training systems.

For military services and civil airlines worldwide, Rediffusion has delivered more than 650 simulators and associated subsystems. In addition, over 430 visual systems bear the Rediffusion trademark. Ranging from fixed and rotary wing aircraft to tanks and hovercraft, Rediffusion has provided training equipment for more than 85 different vehicles.

At Rediffusion, advancement of the science of simulation and training is the major commitment. Conducting extensive research and development efforts and maintaining in-house learning centers, such as the Ada Resource Center, enable the company to consistently introduce the industry's most innovative simulation and training equipment.

BET is one of the world's leading service companies, with strong market positions in five sectors.



Rediffusion Simulation equipment operates in 40 countries worldwide.

This commitment to develop innovative training equipment and solutions is firmly supported by our corporate parent, BET. Headquartered in London, England, BET service companies reach around the globe. BET employs over 100,000 people in 400 operating subsidiaries, with facilities in 30 countries. Diversified holdings in transportation, industrial services, electronics and leisure, publishing, and construction generate \$3 billion in sales annually. BET, the world's leading international services company, is traded on the New York Stock Exchange.

Rediffusion has developed and produced the software, hardware and provided the know-how to build and refurbish more than 120 military simulators worldwide. And over 15 countries have chosen to train their armed forces on Rediffusion simulators.

Subcontractor Expertise...

Understanding program requirements and having the resources to meet them, in a timely and cost effective manner, characterize Rediffusion's success as a subcontractor.

Rediffusion has supplied simulation systems and subsystem hardware, software, and integration expertise as a key subcontractor for major simulator and trainer programs including the E-3A, B-52, KC-135, B-1B, T-45, and Landing Craft Air Cushion (LCAC). In response to the various program requirements, Rediffusion has provided fully integrated cockpits, motion systems, digital control loading systems, instructor consoles, radio aids, flight simulation software, power distribution systems, visual displays, visual image generators and electronic interfaces.

Prime Contractor Experience

Rediffusion has military prime simulator contractor experience for programs including the AWACS E-3A, Sea King, Hawk, Lynx, VC 10, and RC-135.

For a USAF AWACS E-3A early warning aircraft simulator, Rediffusion completed an extensive upgrade/refurbishment program. The upgrade program, which called for delivery of a textured day/dusk/night visual system, WIDE display, instructor's console, and motion and sound systems, has extended the service life of the simulator an additional 15 years.

And when chosen by the United Kingdom's Ministry of Defense as prime contractor for the Sea King helicopter simulator, Rediffusion provided the complete simulator package. The simulator has been integrated with three tactical crew trainer cabins to satisfy a wide range of mission training requirements.



Sea King helicopter (top)
E-3A (bottom)



Sea King simulator



AWACS



Simulator Upgrade Capability

Because simulation and training technology continues to race ahead, Rediffusion has been actively involved in simulator modifications, upgrades, and refurbishments to extend operational service life of existing training equipment.

Rediffusion Simulation Tulsa has successfully delivered modification, upgrade, and refurbishment programs for RC-135, DC-8, DC-9, L-1011 and B727 simulators.

The most innovative upgrade and refurbishment program involved the modification/upgrade of a B707 commercial flight simulator to a state-of-the-art USAF RC-135 operational flight trainer. After refurbishment and modification, the RC-135 OFT was integrated with a new dusk/night visual system and an existing motion system. Since entering service, the new RC-135 simulator has consistently exceeded its mission effectivity objectives.

E-3A simulator

MILITARY SIMULATION SYSTEM PROGRAMS

US DOD	USAF	VULCAN
B-1B		WESSEX
B-52		OTHER MILITARY
B-52 ARPTT		AB 204B
E-3A		AWACS
KC-135		C-130
RC-135		C-160
UK MOD		CANBERRA
COMET		CF-106
HAWK		F-5
HUNTER		F-35
JAVELIN		F-86
LIGHTNING		HUNTER
LYNX		LIGHTNING
METEOR		MB-326
NIMROD		NORATLAS
PHANTOM		P-3C
SEA KING		S-2F
TORNADO		SF-340
VALIANT		SEA KING
VC 10		TUCANO
VICTOR		

Since the first days of computer generated imagery, Rediffusion has brought unprecedented realism to simulated visual scenes. The first to introduce visual systems which achieved FAA Phase II and Phase III certification, Rediffusion has continued to be the leading supplier of visual systems to the world market.

The driving force behind each of these accomplishments has been Rediffusion's visual systems design expertise, which provides for the development of complex data bases and integration of any image generator with the appropriate display equipment to meet specified training system requirements.

Rediffusion offers image generators produced by the computer graphics industry's leading manufacturers, providing the flexibility to precisely match an image generator's capability to a user's training task. And with a complete selection of display technology, Rediffusion can integrate any image generator with standard optical, dome, high resolution area-of-interest, or wide-angle infinity display equipment.

But before decisions are made which influence visual and display system equipment selection, Rediffusion:

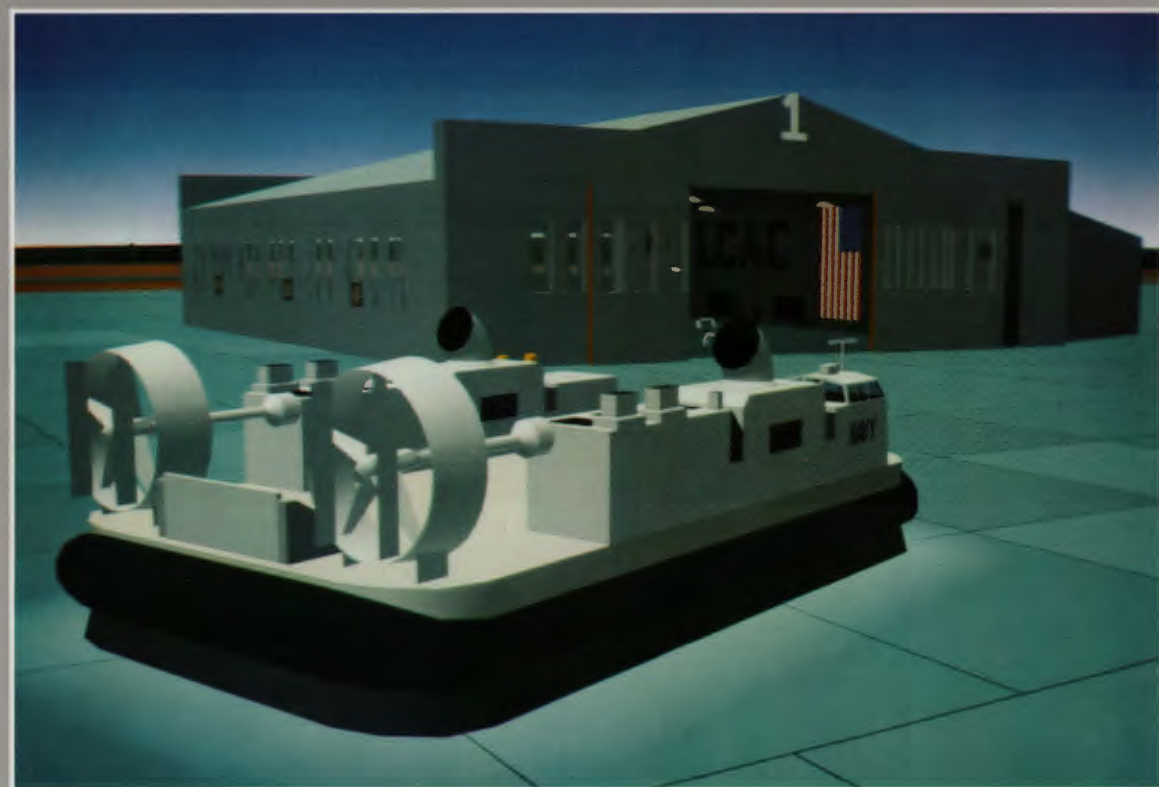
- evaluates the operational training requirements,
- analyzes the individual and combined training tasks, and
- involves the user throughout the process.

Only then is the most suitable combination of image generator and display technology selected.



▲
USAF UPT program

▲
LCAC program



Data Base Design

Rediffusion's graphics data base design engineers are experienced in creating task-oriented data bases which provide the visual cues and stimuli necessary to perform fixed wing, helicopter and surface vehicle training. This includes operations associated with air-to-ground tactical maneuvering, inflight refueling, formation flight, carrier and hovercraft operations, weapons delivery, low-level flight and surface actions under adverse weather conditions during full daylight, dusk or night conditions.

To simulate tactical mission flight at night, Rediffusion data base designers have experience in providing electro-optical and infrared sensor simulation which correlates with radar landmass and out-of-the-window visual imagery. In addition, these data bases, in association with Rediffusion displays, are fully compatible with the latest generation of night vision goggles.



▲
USAF KC-135 program

Rediffusion's visual systems design experience includes providing the integration expertise required to fine tune graphics data bases, displays and image generators with the simulator's host computer to create optimum training systems for such diverse simulators as the AV-8B, T-45, CH-46, CH-53, T-37, T-38, KC-10, KC-135, E-2C, E-3A, EA-6B, F-18 aircraft and the Landing Craft Air Cushion vehicle.



▲
U.S. Navy T-45 program

VISUAL SYSTEM PROGRAMS

USAF (76)	USCG (2)
B-1B	HH-65
C-5	HU-25
C-141	USMC (9)
E-3A	AV-8B
F-15E	CH-46
KC-10	CH-53
KC/RC-135	NASA (2)
T-37	ACAVS
T-38	OMS
T-39	OTHER MILITARY (9)
USN (31)	AWACS
A-6E NCLT	C-130
CH-46D	LYNX
E-2C	SEA KING
EA-6B	HARRIER
F-18	VC 10
LCAC	RESEARCH (33)
T-45	CIVIL AIRLINES (272)
TH-57	
NADC	

TOTAL VISUAL SYSTEMS — 435

Low-cost Visuals

In response to industry needs, Rediffusion has developed the POLY 2000e® and MicroPOLY™ low-cost visual systems, which provide effective, specialized task training.

POLY 2000e provides three-dimensional real world simulation, using one monitor as a system terminal and a second, larger monitor as the graphics display. Within the aerospace industry, NASA is using POLY 2000e to train personnel in operation of the Orbital Maneuvering Vehicle and shuttle cargo bay arm. Many major aerospace firms are employing POLY 2000e in a wide variety of engineering, simulation and laboratory applications.

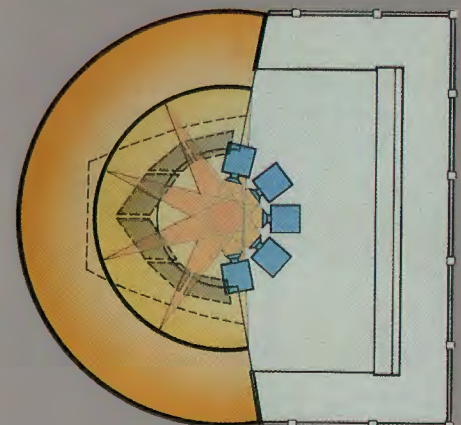
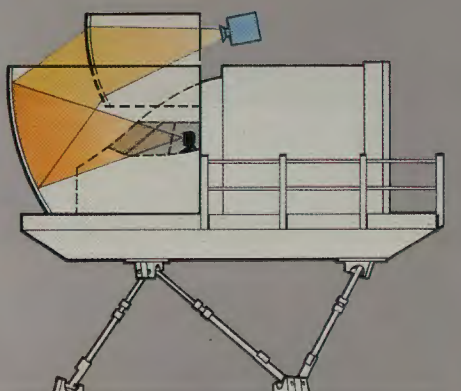
MicroPOLY has been designed to cost-effectively train units of personnel for a variety of part task training applications, such as ground-to-ground target identification and weapons delivery. MicroPOLY's computer graphics imagery allows complete three-dimensional interaction of the student, target and terrain.

POLY 2000e



Rediffusion offers a comprehensive array of cost-effective display systems to satisfy a wide range of training requirements. Monitor optics displays, wide-angle infinity display equipment, fixed projector dome displays, and head/eye tracked area-of-interest systems provide the flexibility to select the display system which best meets training or simulation performance criteria.

WIDE creates a 40 degree vertical field of view, and depending on the number of projectors provides between 150 degrees and 200 degrees continuous horizontal field of view.



Monitor Optics

Mirror/beamsplitter collimated displays have been the mainstay for both military and civil airline applications. With over 350 Rediffusion systems in operation, monitor optics displays have proven to be highly effective in displaying near-infinity images that can be arranged from single window to eight window juxtaposed configurations. And monitor optics displays have proven to provide high image brightness and resolution.

WIDE

Complete crew-coordinated simulator training became reality when Rediffusion introduced the first wide-angle infinity display equipment — WIDE. Because of WIDE's infinity display capability, for the first time ever geometrically correct images are seen by all crew members simultaneously regardless of their location throughout the cockpit/deck area.



In WIDE, the infinity image is formed on a back projection screen by calligraphic projectors, and is viewed via a large diameter collimating mirror.

WIDE's cross-cockpit field of view — which ranges between 150 to 200 degrees horizontally depending upon projector configuration — is presently being utilized on helicopter, transport, tactical, civil airline and surface vehicle simulators. For military helicopter mission scenarios, where over-the-shoulder viewing capability is essential, WIDE's 200 degrees of horizontal field of view has brought new realism and capability to the training environment.

And while other display manufacturers may make similar claims, only Rediffusion is able to substantiate them with over 60 WIDE systems on order or in operation.

In a five projector configuration, WIDE can provide 200 degree horizontal field of view, such as seen in the Sea King helicopter.

Domes and AOI Displays

Many of today's military combat aircraft conduct missions where pilots require visual coverage approaching 360 degrees, both horizontally and vertically.

For these highly maneuverable aircraft, Rediffusion has experience in generating large fields of view in a simulator by utilizing either fixed projector or head/eye tracked projector dome image display systems.

With the simulator cab installed inside a dome-shaped projection screen, the fields of view expand dramatically. And through innovative calligraphic projectors, extra clarity is brought to day/dusk/night scenes.

This concept has been evaluated by the USAF's Tactical Air Warfare Center on Rediffusion's F-15 Limited Field of View Visual System. Results of the three-month study concluded that the visual system substantially enhanced overall simulator training effectiveness, particularly in the areas of day/night transition, air superiority, and air-to-surface training operations.



The ELITE display technique uses a laser to project the high resolution image against a lower resolution background.

ELITE

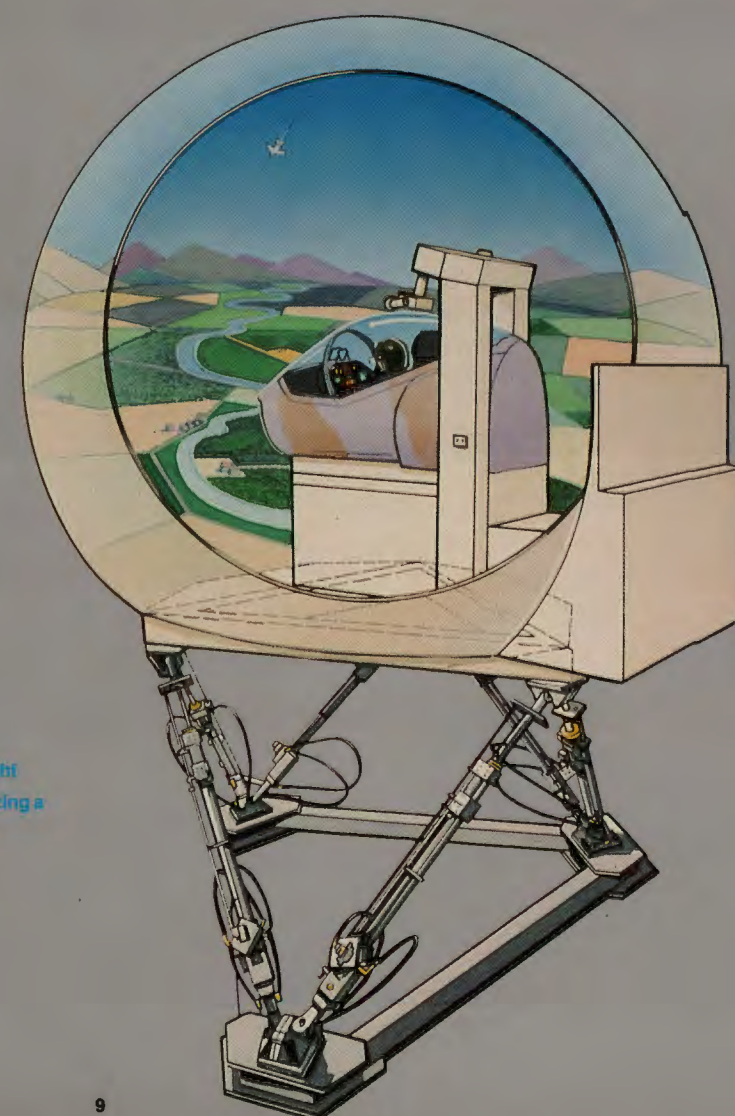
ELITE is a helmet-mounted display system which is controlled by employing laser technology to project imagery in response to the pilot's eyepoint. The laser projects a high resolution image against a lower resolution background, permitting most of the available scene detail to be concentrated over an area corresponding to the pilot's central vision at any moment during the simulator flight.

ELITE has been developed in conjunction with the Naval Training Systems Center for their Visual Display Research Tool program and is operational on a T-2C research simulator.

Through ongoing research efforts in all fields of display technology, Rediffusion remains dedicated to enhancing existing systems and developing new ways to improve the presentation of the visual scene in response to tomorrow's training and simulation requirements.

IMAGE DISPLAYS			
USER	WIDE	TYPE	
		CRT	DOVE/AOI
Military	11	90	17
Airlines	48	255	
R & D	2	7	1
	61	352	18
TOTAL — 431			

Concept of flight simulator utilizing a dome display



The selection of training media which provide realistic, accurate and consistent practice opportunities is a key factor in effective operator and maintenance training. Rediffusion trainers are designed to meet these criteria, providing cost-effective crew and maintenance training.

Rediffusion produces a complete range of flight and ground crew training equipment. This includes full flight simulators, maintenance trainers, cockpit systems trainers, cockpit procedures trainers, cabin procedures and evacuation trainers, cabin service trainers, door trainers, door and overwing trainers and crew emergency evacuation trainers.

Full cockpit procedures trainer features include representative flight control feel, digital sound and functional instruments for complete pilot/operator ground training. Systems such as engines, electrical, hydraulics, APU and fire, are simulated for accuracy in the on-ground mode and at selected predefined altitudes.

Ground maintenance trainers, such as the 51 cockpit devices Rediffusion is building under subcontract for the F-16 Simulated Aircraft Maintenance Trainer program, duplicate cockpit interior, maintenance and test panels. These devices allow maintenance personnel to gain the feel of working on the craft and its operating systems without fear of damage to the actual vehicle. And the operational vehicle is never grounded to support training requirements.

F-16 maintenance trainer



Instructor Console

The operator-friendly, touch-activated simulator control (TASC) pioneered by Rediffusion allows instructors to devote more attention to student monitoring and training and less to tedious simulator operation and problem control. TASC provides a powerful, flexible exercise control system with rapid access to primary status information via display overlays, high resolution color graphics and a sophisticated software management system.

Motion and Control Loading

Dedicated real-time processors control Rediffusion's totally digital motion and control feel systems, assuring ease of maintenance and modification.

Rediffusion's family of motion systems represents the latest technological advancements. The motion systems employ 32 bit computing accuracy and 500Hz iteration rates to produce smooth, low-velocity motion, vibration sensations, and essential on-set accelerations. Ultra-low friction hydrostatic technology is employed in producing up to six axes of vehicle movement. The control feel systems use the same technology to ensure smooth and realistic operator control system inputs.

The B-1B, B-52 PTT, E-3A, KE-3A, KC-135, T-45, Hawk, Lynx, Sea King and LCAC are integrated with Rediffusion motion and control loading systems.

Instructor console

Simulated Instrumentation

AMI Instruments, Inc. is the industry's leading supplier of sophisticated simulated instruments. AMI designs and produces state-of-the-art simulated instruments, electronics devices, and precision electromechanical and solid state displays which accurately reproduce all operational and aesthetic features of specified equipment. Because of market demand, AMI offers a complete repair/modification service for equipment of its own design and those of other manufacturers.

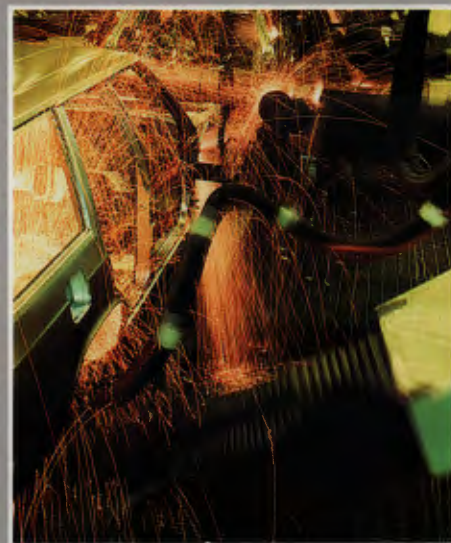
Electronics Manufacturing

Completing Rediffusion's full line of services is its capability to provide custom electronics manufacturing. Rediffusion offers design, art work, printed circuit board layout, assembly and testing of small- to medium-scale electronic devices. Well-equipped to meet customers' stringent controls and specifications, Rediffusion has delivered projects for the U.S. military, industry and civil airlines worldwide.



Simulated instruments are made by Rediffusion's AMI Instruments, Inc.





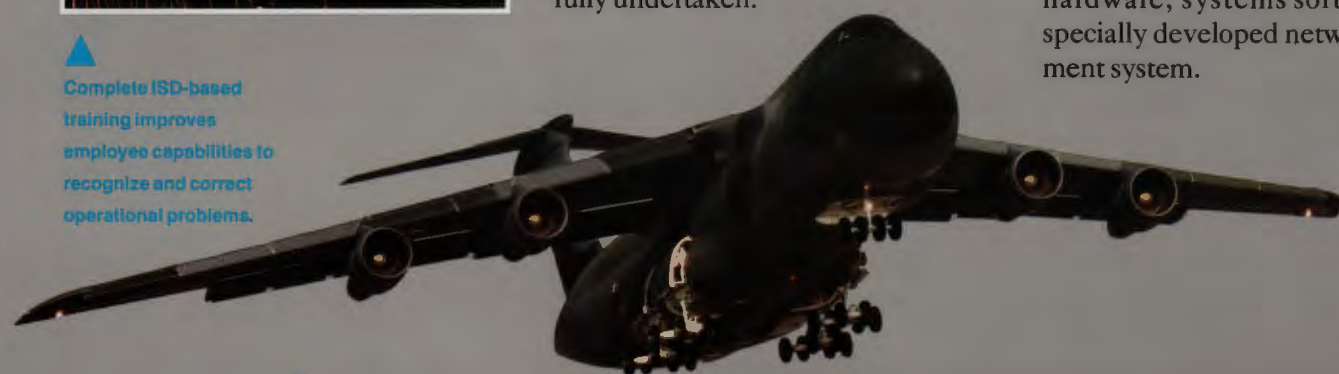
Complete ISD-based training improves employee capabilities to recognize and correct operational problems.

Building on our reputation as a world leader in simulation technology, Rediffusion has established a group devoted to instructional systems development (ISD) and computer based training. This team of training professionals analyzes your training needs and recommends the training systems which will be most effective. Then, Rediffusion can design and develop training materials and devices that satisfy your instructional requirements.

This systems approach to training has been demonstrated in a number of projects Rediffusion has successfully undertaken.

When the American Petroleum Institute recognized the need to develop an interactive skill development program for field operational personnel responsible for gas measurement activities, they selected Rediffusion. API chose Rediffusion to develop the first computer based training module in a planned series on troubleshooting gas measurement.

And for the USAF's C-5 training program, United Airlines Training Services Corporation needed a computer based training system. They contracted with Rediffusion to supply the hardware, systems software, and a specially developed network management system.



Rediffusion computer based training today supports the C-5 aircrew training program.



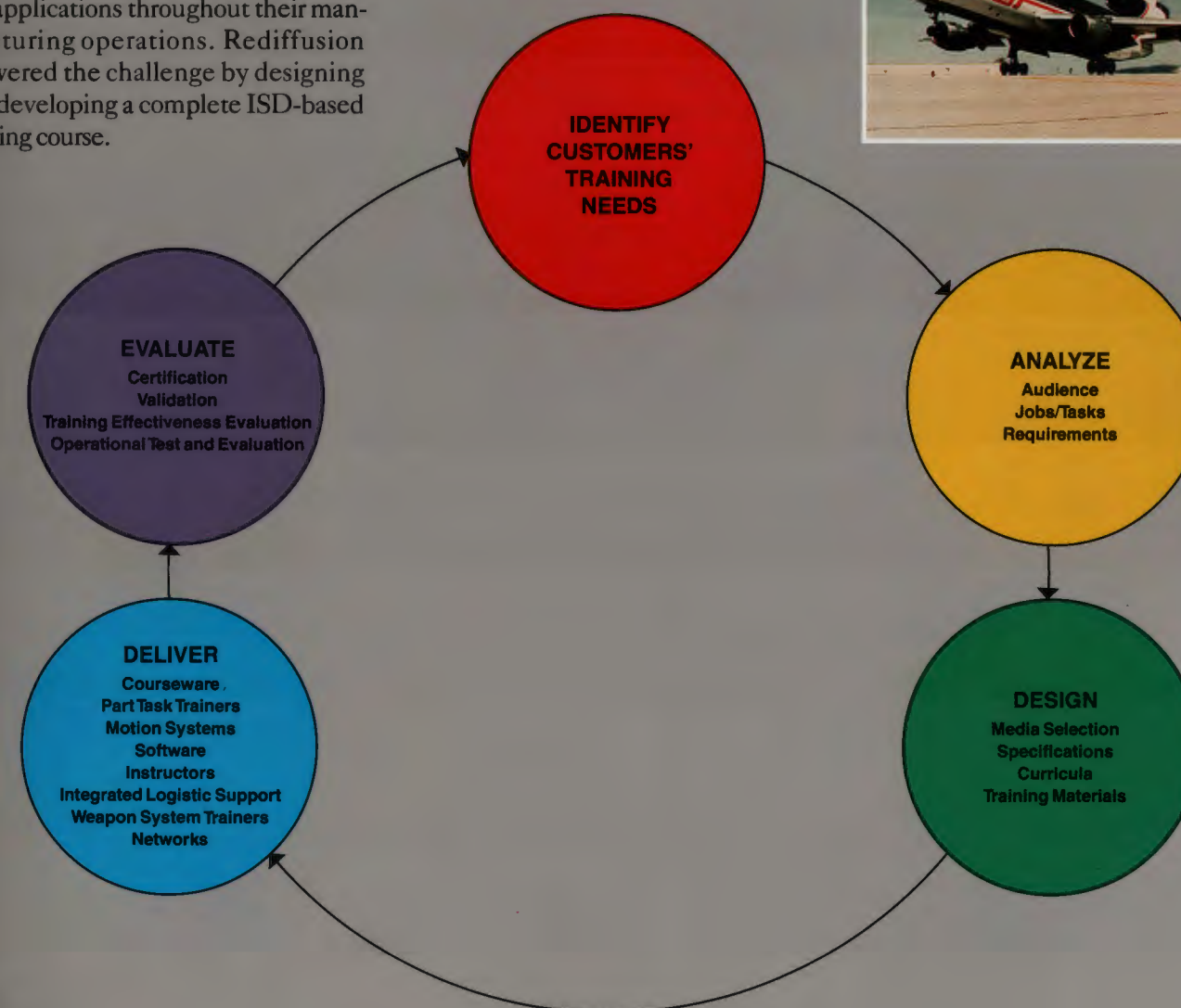
Rediffusion's interactive skill development programs are increasing energy industry productivity.

In a move to enhance the value of simulator time, British Caledonian Flight Training Ltd. turned to Rediffusion for a better way to train pilots on the use of the Flight Management System on the Boeing 737-300. Rediffusion responded by developing a trainer which cost-effectively replicates the flight management system and electronic flight instruments found on B737-300s.

To improve plant productivity, Ford Motor Company responded by selecting Rediffusion to develop a training program to instruct personnel in the operation and maintenance of variable speed motors found in over 200 different applications throughout their manufacturing operations. Rediffusion answered the challenge by designing and developing a complete ISD-based training course.

Rediffusion's list of ISD and computer based training success stories crosses many boundaries, from manufacturing and process control to the military and aerospace. And it's due to one primary fact — regardless of the training requirement, ISD and computer assisted instruction provide training managers with a consistently efficient tool for training, which brings results in the classroom and on the job.

Computer based training is playing an integral role in pilot training programs.



The performance of Rediffusion's family of training equipment is a product of design excellence, quality production and a dedicated after sales support program.

Through our Integrated Logistics Support (ILS) programs, Rediffusion designs its equipment to be cost-effectively supportable throughout its projected life cycle.

Simulator program life cycles are analyzed and comprehensive programs are developed on the overall engineering design process, government specifications and standards, operational training requirements, and special user supportability needs. Because each user may have different requirements, these services are custom-tailored for each program. These services include:

- Reliability and maintainability engineering,
- Logistics support and life cycle cost analysis,
- Maintenance planning and training,
- Provisioning and spare parts inventory,
- On-call technical support, and
- On-site customer support services.

RSI's customer support team is at your service 24 hours a day.



Ready For The Challenge

From production of complex training and simulation systems to the supply of a single subsystem, Rediffusion has the experience and demonstrated capability to contribute significantly to major training programs. As a prime contractor and subcontractor, Rediffusion has a proven record of meeting sophisticated technical, schedule, support, and cost program objectives for training applications throughout the armed forces, civil airlines and industrial marketplace worldwide.

RSI's corporate headquarters facility



M O R E T H A N M E E T S T H E E Y E

A **BET** ELECTRONICS COMPANY



REDIFFUSION

Simulation Software

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